age of current between sub-pixels and/or IR drop and reduce perceivable artifacts such as banding, color inaccuracies, edge effects, etc.

[0073] The specific embodiments described above have been shown by way of example, and it should be understood that these embodiments may be susceptible to various modifications and alternative forms. It should be further understood that the claims are not intended to be limited to the particular forms disclosed, but rather to cover all modifications, equivalents, and alternatives falling within the spirit and scope of this disclosure.

What is claimed is:

1. An electronic device comprising:

an electronic display comprising a plurality of pixels and configured to display an image based at least in part on processed image data, wherein each of the plurality of pixels comprises a plurality of sub-pixels; and

image processing circuitry configured to:

receive input image data in a first color space, wherein the input image data comprises luminance values for each of the plurality of sub-pixels;

map the input image data from the first color space to a second color space;

apply a multi-dimensional lookup table based on the input image data in the second color space to generate compensated image data, wherein the multi-dimensional lookup table is configured to:

receive the luminance values for each of the plurality of sub-pixels; and

output corrected luminance values for each of the plurality of sub-pixels, wherein the corrected luminance values are compensated for an expected amount of current leakage between the plurality of sub-pixels; and

inversely map the compensated image data from the second color space to the first color space to generate the processed image data.

2. The electronic device of claim **1**, wherein the image processing circuitry is configured to:

determine whether a brightness of the electronic display is less than a threshold brightness; and

map the input image data from the first color space to the second color space in response to determining that the brightness of the electronic display is less than the threshold brightness.

3. The electronic device of claim **2**, wherein in response to determining that the brightness is not less than the threshold brightness, the image processing circuitry is configured to:

bypass mapping the input image data from the first color space to the second color space;

apply the multi-dimensional lookup table to the input image data in the first color space to generate the processed image data; and

bypass inverse mapping of the input image data.

4. The electronic device of claim **2**, wherein the brightness comprises a brightness setting of the electronic display.

5. The electronic device of claim **2**, wherein the brightness comprises a light intensity output of the electronic display.

6. The electronic device of claim **1**, wherein the image processing circuitry is configured to model the expected amount of current leakage and generate the multi-dimensional lookup table based at least in part on the model.

7. The electronic device of claim **1**, wherein the image processing circuitry is configured to generate the multi-dimensional lookup table based at least in part on a temperature of the plurality of sub-pixels.

8. The electronic device of claim **1**, wherein the first color space comprises a linear color space and the second color space comprises a non-linear color space.

9. The electronic device of claim **1**, wherein the multi-dimensional lookup table comprises uniform tap points of corrected luminance values.

10. The electronic device of claim **9**, wherein the image processing circuitry is configured to interpolate between the uniform tap points of corrected luminance values to generate the compensated image data.

11. The electronic device of claim **1**, wherein the corrected luminance values are compensated for an expected amount of voltage drop associated with an internal resistance (IR) of each of the plurality of sub-pixels.

12. A method comprising:

receiving, via image processing circuitry, input image data in a first color space, wherein the input image data comprises luminance values for each of a plurality of sub-pixels of an electronic display;

determining that a brightness of the electronic display is less than a threshold brightness;

in response to determining that the brightness of the electronic display is less than the threshold brightness, mapping the input image data from the first color space to a second color space;

applying a multi-dimensional lookup table based on the input image data in the second color space to generate compensated image data, wherein the multi-dimensional lookup table is configured to map the luminance values for each of the plurality of sub-pixels to corrected luminance values for each of the plurality of sub-pixels, wherein the corrected luminance values are compensated for an expected amount of voltage drop associated with an internal resistance of each of the plurality of sub-pixels; and

mapping the compensated image data from the second color space to the first color space to generate processed image data.

13. The method of claim **12**, wherein the corrected luminance values are compensated for an expected amount of leakage current between sub-pixels of the plurality of sub-pixels.

14. The method of claim **12**, wherein the multi-dimensional lookup table comprises a dimension for each type of sub-pixel of a pixel.

15. The method of claim **14**, wherein each type of sub-pixel comprises a different color component associated with the type.

16. The method of claim **12**, wherein determining that the brightness of the electronic display is less than the threshold brightness comprises determining that a brightness setting of the electronic display is less than a threshold brightness setting.

17. The method of claim **16**, wherein the brightness setting is user selectable.

18. A non-transitory machine readable medium comprising instructions, wherein, when executed by a processor, the instructions cause the processor to:

receive input image data in a linear color space, wherein the input image data comprises luminance values for